DOE/EH(TSCA)-001

Environmental Guidance

Management of Polychlorinated Biphenyls (PCBs)

QUESTIONS & ANSWERS

November 1995

U.S. Department of Energy
Office of Environmental Policy & Assistance
RCRA/CERCLA Division, EH-413
Washington, D.C.

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United States Government **Department of Energy**

memorandum

DATE: November 17, 1995

REPLY TO ATTN OF: Office of Environmental Policy and Assistance(EH-413):Walder:6-8248

SUBJECT: **MANAGEMENT OF POLYCHLORINATED BIPHENYLS (PCBs) - QUESTIONS AND ANSWERS**

TO: Distribution

PURPOSE OF THIS MEMO To provide the subject environmental guidance to Department of Energy (DOE) Program Offices and Field Organizations.

CONTENTS OF THIS DOCUMENT The attached document provides questions and answers to a broad array of PCB management issues facing the Department. The questions were asked by DOE field and headquarters personnel at one of several PCB Management Focus Group meetings. The answers were given by Dr. John Smith of the Environmental Protection Agency, Office of Pollution Prevention and Toxics. This document presents a summary of Dr. Smith's presentation at the meeting and the subsequent question and answer session.

WHO SHOULD READ THIS DOCUMENT This guidance document, *Management of Polychlorinated Biphenyls (PCBS) - Questions and Answers*:

- o Is directed to DOE and contractor personnel responsible for managing PCBs under the Toxic Substances Control Act (TSCA), both in the waste management and environmental restoration areas.
- o May be of interest to persons wishing to learn more about the issues affecting PCB management within the Department of Energy.

CONTACT Questions concerning PCB management issues may be directed to Carolyn Thompson Walder of my staff by ...

- o calling (202) 586-8248,
- o faxing messages to (202) 586-0955
- o communicating electronically, via Internet, to carolyn.thompson@hq.doe.gov.

Thomas T. Traceski
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Management of Polychlorinated Biphenyls (PCBs)

QUESTIONS & ANSWERS

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RCRA/CERCLA DIVISION
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SUMMARY

This "Management of PCBs Questions and Answers" has been developed from a presentation given by Dr. John Smith of the Environmental Protection Agency (EPA), and the transcribed question and answer session which followed the presentation. Dr. Smith was featured at the first DOE complex-wide PCB Focus Group meeting held in San Francisco, California in December 1992. The meeting was attended by representatives from field elements who were actively involved in the management of PCBs. The meeting served as a forum for the exchange of information and discussion of PCB management issues.

This document has been prepared as one of several guidance documents developed by the Department of Energy Office of Environmental Policy and Assistance (EH-41) (*formerly the Office of Environmental Guidance, EH-23*) to assist DOE elements in their PCB management programs. This document is organized into three parts: (1) an introduction describing the conception and development of this document, (2) a summary of Dr. Smith's presentation, and (3) the question and answer session.

PART 1: INTRODUCTION

The Department of Energy (DOE) is required to comply with all applicable Federal environmental laws and regulations. The management of polychlorinated biphenyls (PCBs) comes under the jurisdiction of several laws, principally the Toxic Substances Control Act (TSCA). Other laws that may apply include the Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Clean Water Act (CWA); Hazardous Materials Transportation Act (HMTA); and Occupational Safety and Health Act (OSHA).

To comply with applicable Federal laws related to the management of PCBs, DOE facilities must first understand the requirements imposed by such laws and their implementing regulations. The number of Federal laws that apply to PCB management and the complexity of the TSCA regulations are impediments to DOE compliance. The Office of Environmental Policy and Assistance (EH-41) provides guidance and related technical assistance to DOE elements on the aforementioned environmental laws and their implementing regulations. As part of this mission, EH-41 has published a number of documents to assist DOE facilities in complying with the Federal requirements for PCB management. These documents include: *Guidance on the Management of Polychlorinated Biphenyls (PCBs)* (DOE/EH-0350, November 1993); *PCB Manifesting, Tracking, and Disposal Requirements* (EH-231-001, November 1990); *Disposal Requirements for PCB Waste* (EH-231-056/1294, December 1994); *The PCB Mark* (EH-231-057/1294, December 1994); *PCB Recordkeeping and Reporting* (EH-231-058/1294, December 1994); *PCB Spill Response and Notification Requirements* (EH-231-059/1294, December 1994); and *PCB Storage Requirements* (EH-231-060/1294, December 1994). The first document is a comprehensive guidance document which covers all aspects of the regulations specified at 40 CFR 761. The remaining documents are shorter "Information Briefs" each of which covers a particular subject topic.

As part of its mission to develop guidance and provide technical assistance, EH-41 had initiated the formation and management of a Focus Group to assist in identifying other guidance and educational program needs for the management of PCBs. The first Focus Group meeting was held in December 1992 and included representatives from field elements who were actively involved in the management of PCBs at their respective Field Offices and facilities. The meeting provided a forum in which participants could exchange information and discuss PCB management issues that are of primary concern to the Program Offices and Field Organizations. The meeting was organized to foster an environment which aided in forming a collective resolution to problematic PCB management issues. In this spirit, part of the meeting featured a seminar with Dr. John Smith of EPA's Office of Pollution Prevention and Toxics (OPPT). This seminar included a brief presentation covering the basics of PCB regulation under TSCA and a subsequent question and answer period. The question and answer period was unstructured and allowed participants to ask questions on a wide range of PCB management issues. This seminar was audiotaped.

This "Management of PCBs Questions and Answers" has been developed from the transcribed audiotapes to assist DOE elements in their PCB management programs. The audiotapes have been edited substantially to improve the readability of this document; however, every attempt was made to ensure that the content remained intact. Further, the material has been updated to reflect the recently proposed rulemaking (issued December 6, 1994). To further assist the reader, the questions and answers were grouped by topic. The Table of Contents provides a listing of the topics covered during the question and answer session.

PART 2: PRESENTATION OF DR. JOHN SMITH

PCB Background

Passage of the TSCA in 1976 was largely motivated by increasing concerns over the health and safety of PCBs. Mounting evidence, such as detection of PCBs in breast milk of nursing mothers and discovery of PCBs in pristine lakes, demonstrated that PCBs had been widely distributed throughout the environment. Such widespread distribution is greatly attributed to the stability of this family of compounds. They are very persistent in the environment and do not tend to metabolize or become diluted. Evidence has shown that PCBs bioaccumulate or bioconcentrate throughout the food chain. Researchers have also documented that because PCBs are lipophilic (i.e., concentrate in fatty tissue) they tend be found in greater amounts in larger, more complex animals. These synthetic compounds have been detected in human adipose samples.

While the health effects of animals exposed to PCBs have been well researched, the human health effects of PCBs are not well understood. The only documented effects known to be caused by PCBs are chloracne, itching, and burning of the skin. All of these symptoms can be reversed if the exposed skin is washed clean of PCBs. Research on animals, however, has linked PCBs to several chronic health effects including liver toxicity and cancer, reproductive effects, developmental toxicity, neurological impairment, gastric hyperplasia, and ulcers. Additional chronic human health effects that may be caused by PCBs include liver disorders, elevated blood serum triglyceride, and induction of mixed-function oxidizers (i.e., precursors to cancer in animals; the evidence of cancer in humans is not conclusive).

PCBs enjoyed widespread use because this family of colorless, odorless compounds has properties ideally suited for industry, namely flame-retardance and thermal stability. As viscous liquids, they also possess a low vapor pressure and are not readily biodegradable. Due to these properties, PCBs were most commonly used as dielectric, hydraulic, and heat transfer fluids, and as plasticizers.

EPA approximates that 1.5 billion pounds of PCBs were manufactured between 1929 and 1976. EPA estimates that approximately 50 percent of these PCBs were disposed of prior to the promulgation of the first PCB regulations in 1976. EPA believes that most of these PCBs were not disposed of in hazardous waste landfills or in high-temperature incinerators, but were discarded in, what would today be considered, an unsafe manner. EPA assumes that the remaining 50 percent of the PCBs manufactured before the first TSCA regulations were promulgated (primarily in transformers and capacitors) were still in use on the date of promulgation. Since 1976, much of the PCBs in use have been disposed of in accordance with the TSCA regulations. Furthermore, EPA expects that most of the PCBs still currently in service will be phased out in accordance with the existing rules established under TSCA.

Overview of the PCB Regulations

To protect human health and the environment from the impacts that may result from exposures to PCBs, Section 6(e) of TSCA required the promulgation of rules regulating their management. The PCB management aspects stated in TSCA, to be addressed in regulation, are (1) marking with clear warnings; (2) prescribing of disposal methods; and (3) restricting PCB use, manufacture, processing, and distribution in commerce. *The following paragraphs briefly discuss aspects of the current regulations as they are described in 40 CFR 761.*

One of the immediate impacts of the TSCA regulations was to essentially ban the manufacture of PCBs after 1978. The regulations do, however, make exemptions for inadvertently generated PCBs or recycled PCBs.

Similarly, TSCA bans most forms of processing PCBs such as formulating, adding liquids, diluting, or even transferring PCBs into different containers. Facilities may process PCBs for disposal (i.e., drain them from the transformer into a storage container and transport them to a disposal facility) without EPA approval. Processing of some commonly recycled products such as carbonless copy paper and asphalt roofing tile, which may contain PCBs, is authorized under certain conditions. Other processing requires approval or an exemption (by rulemaking).

TSCA specifically prohibits PCBs and PCB Items, regardless of concentration, from being distributed in commerce [i.e., sold, traded, or transported (except for disposal)] unless they are used in a totally enclosed manner, or an exemption from the prohibition is obtained. Exemptions may be granted for distribution of small quantities of liquid PCBs used for research and development applications, and for other uses such as optical liquids or as a medium for microscopy mounting. Electrical equipment containing PCBs may also be granted an exemption from the ban. For example, salvaging and smelting of some PCB-contaminated equipment is permitted under certain conditions. While the distribution of PCBs in commerce is banned, transportation for disposal is not considered "distribution in commerce;" therefore, no special exemption or authorizations are needed for this activity.

Use of PCBs are also specifically regulated under TSCA. The regulations state that PCBs may only be used in a totally enclosed manner (i.e., ensuring no exposure to humans or the environment), unless authorized. 40 CFR 761.30 specifically authorizes the use of PCBs in "non-totally enclosed" activities, such as use in or servicing of transformers and heat transfer systems. Some non-totally enclosed uses may be authorized by the EPA if exposure to PCBs will be insignificant and pose no unreasonable risk to human health or the environment. Furthermore, the regulations, when first authorized, permitted the use of some existing stocks of manufactured materials (e.g., carbonless copy paper) until those stocks were exhausted. Use of PCBs in these materials, however, as well as other authorized uses of PCBs, must conform to regulatory requirements involving recordkeeping, inspections, marking/labeling, servicing, and notification. Any use of PCBs that is not specifically authorized or exempted is banned for any measurable concentration of PCBs, including concentrations less than 50 parts per million (ppm). PCB

transformers are banned for use in any new installation; however, PCB transformers may be used in the case of an emergency and may be reclassified (i.e., the dielectric fluid is drained and replaced with non-PCB or lower-concentration PCB transformer fluid) at any time.

Requirements for disposal of PCBs are established under TSCA. The primary factors that characterize the disposal requirements are as follows: time when materials are declared a waste; PCB concentration; form of the waste as either liquid or non-liquid; and the origin of the PCBs. TSCA regulates the disposal of PCB material with a PCB concentration greater than or equal to 50 ppm. Those materials with a PCB concentration less than 50 ppm are excluded from TSCA regulation as long as the PCB concentration in the material of origin was also less than 50 ppm. The concentration of PCB materials for disposal can not be determined as a result of dilution. For example, if PCBs with a concentration greater than or equal to 50 ppm are spilled as dielectric fluid from a ruptured transformer, the Spill Cleanup Policy (40 CFR 761 Subpart G) becomes effective. The Spill Cleanup Policy recognizes that dilution has occurred and, as a result, soil and debris remediated from the spill site must be disposed of according to TSCA regulations even if the actual concentration of PCBs in these materials is less than 50 ppm (i.e., the soil/debris must be considered to have a PCB concentration equivalent to the transformer). For more information, see the aforementioned Information Briefs, *Disposal Requirements for PCB Waste* and *PCB Spill Response and Notification Requirements*.

TSCA specifically defines the methods allowable for disposal of PCBs which include destruction by high-temperature incineration, placement in a chemical waste landfill, and destruction in a high-efficiency boiler. In addition, EPA will allow disposal of PCB materials by individually approved alternative destruction technologies. All facilities and technologies must have a permit issued by the EPA Regional Administrator or by the Office of Pollution Prevention and Toxics (EPA Headquarters) to either dispose of PCBs or to separate PCBs from another material prior to disposal (which is considered processing). In addition, TSCA establishes provisions for PCBs stored for disposal (40 CFR 761.65) and for transporting PCB materials to disposal facilities. Relevant to transportation, the regulations specify that materials designated for disposal must have an EPA identification number (40 CFR 761.202) as part of a manifesting system that tracks the waste until its ultimate disposal (see the "Information Brief," *PCB Manifesting, Tracking, and Disposal Requirements."*)

Today's PCB Universe

The "PCB universe" can be divided into four categories: PCBs in use, PCBs stored for reuse, PCBs stored for disposal, and PCBs which have been disposed. If a facility owns a piece of equipment that contains PCBs, it makes no difference whether the facility is actively or intermittently utilizing that article; TSCA still considers the status of that equipment as "in use." This determination is largely influenced by the limited provisions accorded the status of PCB Items in "storage for reuse." EPA intends the storage for reuse provisions to apply solely to transformers. However, PCB Items may be considered as "stored for reuse" provided that the item is in useable condition and a future use has been specifically identified. PCBs and PCB

Items stored for disposal are subject to further requirements under TSCA. PCBs that were previously in use and have since been designated for disposal may no longer be used. Once declared to be a waste (i.e., no longer "in service"), the PCBs must be disposed of within one year. Moreover, the one-year time period should account for the time necessary for transporting the waste to the disposer and for the disposal facility to destroy the PCBs. *PCB disposal facilities must be allowed three months, of the one-year time period, in which to dispose of the waste.* Facilities with exceptional PCB problems, such as those facilities with PCB/radioactive mixed waste, should contact EPA in order to address the issue through an enforcement agreement [e.g., Federal Facility Compliance Agreement (FFCA)].

Addressing PCB Matters at DOE Facilities

In addressing PCB matters at DOE facilities, owners and operators should first realize that although many facilities may have higher priority environmental problems (e.g., radioactive and hazardous waste), incidents resulting from regulatory noncompliance and mismanagement of PCB materials could create unwanted publicity and unnecessary expense and regulatory burdens.

EPA recommends that DOE facilities conduct an overview of facility buildings, operational systems, and activities to determine what current, excess, or decommissioned equipment may contain PCBs; and, if there are or have been any PCB releases. The following are the specific steps a facility should take:

(1) Identify all locations of PCBs and what operations may have involved their use. This includes looking for any potential PCB releases through knowing and understanding facility equipment uses and servicing practices.

(2) Evaluate all possible risks to employees, neighborhoods, or other parts of the environment should an actual release or potential release be identified.

(3) Make certain that all reasonable measures are taken to control any releases or potential releases. Facility operators should remember that it is cheaper to incinerate a quart of PCBs than it is to treat/remediate concrete contaminated by a quart of spilled PCBs.

Moreover, EPA maintains that it is necessary for all facilities to come into compliance with the regulations. Incidents of non-compliance may be subject to enforcement actions in which management and/or facility personnel may be held accountable. There have been cases in the past where government employees have gone to jail for hazardous waste violations. If a facility cannot come into compliance through immediate action, the facility should contact the EPA Office of Federal Facilities Enforcement and/or state and local enforcement groups to discuss the problems and any interim actions necessary for eventual compliance. It is EPA's opinion that many of DOE's foreseeable problems, such as storage of radioactive PCBs, can be resolved through mechanisms such as an FFCA.

PART 3: Question and Answer Session[1]

Alternative Disposal Methods for PCB Waste

How would a TSCA approval (permit) be obtained for R&D activities associated with an alternative disposal method for PCB waste?

If the R&D involves less than 500 pounds of PCB waste, the EPA Region would be responsible for issuing the permit. If it involves more than 500 pounds of waste, it would be handled by the Office of Pollution Prevention and Toxics (OPPT) at EPA Headquarters. The amount of PCB waste that will be authorized for disposal through an R&D process depends on the nature of the project. We (EPA) recently authorized R&D experiments involving hundreds of tons of material because a large unit was being built that will treat hundreds of tons of waste per hour. This was approved because it would be inappropriate and impractical to test a large unit such as that with only one ton of material. However, EPA does not want to encourage people to dispose of all of their PCB wastes under the guise of research and development.

If you have an R&D experiment you would like to try, you can bring a proposal to the EPA Region. The EPA Region can either (1) write an approval for you (but most Regions report that this process can take from six months to two years), or (2) work out an agreement with you about terms of enforcement. Generally, if the proposal has merit and the party seeking the approval agrees to dispose of all materials from the R&D experiment through an approved process, EPA will be willing to accommodate you.

Does the Office of Pollution Prevention and Toxics (OPPT) issue any guidance that explains what to include in a research and development permit?

OPPT has two guidance packages available, one for thermal disposal and one for non-thermal disposal. These guidance documents explain what information is required on an application for an approval (TSCA's version of a permit) to conduct R&D activities related to an alternative method of PCB disposal. You can call me (Dr. Smith) at (202) 260-3964 to request either guidance package.

In summary, you must supply detailed information on: the process being proposed; how the process works; who will be responsible for the research; what safety procedures will be used; the amount of material to be treated; and the process specifications, such as feed rate, etc. EPA also needs to know how any processed waste will be analyzed for PCB residue and the method of disposal for the processed waste. If you are going to treat PCBs using a thermal method, you will need to consider how you are going to monitor for the by-products of PCB combustion, such as dioxins and furans.

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[1]In Part 3 of this "Management of PCBs Questions and Answers," Dr. Smith answers questions asked by members of the Focus Group.

EPA recognizes that some of the requested information may not be known before beginning R&D activities. For example, if you do not know exactly what temperatures will be used for thermal treatment alternatives, you should propose a probable range of temperatures. EPA would normally write a provision in the permit that would require written approval for operations outside this range. Information alternatives are usually handled by a short written response by EPA to your telephone request.

How much time is required to evaluate an application and issue an approval?

That would depend on (1) the complexity of the proposal, (2) the completeness of the information submitted, and (3) on the work load of our office when the application is received. OPPT would try to expedite an application for an R&D method to dispose of PCBs contaminated with radioactive constituents or other types of waste with limited disposal options.

What are our options if we contact the Region with a proposal but we do not receive a favorable response? Would it be acceptable to contact your office directly?

Yes, you can contact EPA Headquarters directly for assistance. Workloads at the Regional level can be very heavy, and not all of the EPA Regional personnel have the time to work on a special need such as this. In many cases, PCBs may be a small part of their job, but that is Region-dependent. At times, the Regions have asked the OPPT for assistance in writing disposal permits.

Some of these issues could be addressed in an FFCA if EPA Headquarters believed the (proposed) development technology was worth pursuing. So, if it is a really important project, this avenue should be actively pursued. For example, I was invited to Albuquerque to look at an alternative disposal method for PCBs that has been proposed by DOE's Albuquerque Operations Office. They are seeking an approval to try a pilot unit, which was originally developed and used for other purposes. They want to modify the unit for treatment of about 10 drums of radioactive PCBs. The feed rate is very small, but I wanted to discuss their proposal with them. Since the proposed process is the type that is really needed (i.e., a method for disposing of radioactive PCBs), I am going to do whatever I can to help with that research.

What happens if an attempt is made to dispose of the material using an alternative disposal method under research and development, but the residue from the treatment process is above regulatory limits?

All processed material that is treated under an R&D project is still subject to the TSCA disposal regulations. To gain approval for the new process, either EPA will evaluate the process material to prove that it meets regulatory requirements, or the process material will be disposed of in a TSCA-approved disposal facility. These are the only two options.

What about state requirements and approval? Are we likely to get opposition to research and development from our state regulators?

Despite EPA Headquarters' approval of the technology, the state regulatory authority may still intervene. EPA has no jurisdiction over state requirements. However, we have found most states to be reasonable. The states may add a requirement or two to assure meeting their standards, but I have never heard of a state that would absolutely forbid a demonstration project.

Analytical Standards

Does the Anti-dilution Rule apply to laboratory standards (analytical standards) that were purchased with an original PCB concentration of less than 50 ppm?

If the laboratory standards were less than 50 ppm PCBs when purchased, then they are unregulated for disposal. If they were more than 50 ppm when purchased and were diluted to less than 50 ppm, they are regulated for disposal in accordance with the Anti-dilution Rule.

Could you expand on the Anti-dilution Rule in terms of analytical standards that you produce in your own laboratories?

The Anti-dilution Rule (40 CFR 761.1(b)) states, "no provision specifying a PCB concentration may be avoided as a result of any dilution unless otherwise specifically provided." Therefore, if there is a specific regulatory concentration of PCBs associated with an activity, as with disposal, you cannot legally dilute something to avoid that provision unless it is "otherwise specifically provided" for through an exemption, an authorization, or an exclusion. An example of an activity that fits this situation occurs in the process of reclassifying transformers. In this case, the process of adding non-PCB oil into a drained/rinsed PCB transformer, which may still contain some PCB, is an authorized dilution. Similarly, the generation of analytical standards for distribution in commerce is clearly given an exemption from the TSCA regulations under "processing and distribution in commerce of small quantities for research and development." If commercial laboratory standards are produced by diluting PCB material to a concentration of less than 50 ppm under that exemption, that process is considered authorized dilution. However, you may need to petition EPA to be included in the exemption, and you can contact our office (OPPT) to determine the procedure for that.

Does the final PCB concentration have any effect on the regulatory status of the analytical standards?

No, it depends only on the initial PCB concentration. The dilution of analytical standards that you obtain from a commercial source is subject to the Anti-dilution Rule. As a result, any standards that you dilute in-house are regulated for disposal according to the PCB concentration at the time they were purchased.

The PCB Spill Cleanup Policy

Before addressing your questions about PCB spills, let me briefly discuss the TSCA Spill Cleanup Policy. There are several significant concepts that you must know about the TSCA Spill Cleanup Policy, found in 40 CFR 761 Subpart G. First, it only applies to spills that have occurred since May 4, 1987, which is the effective date of the policy; and, it is not retroactive. Second, it was developed for spills from electrical equipment, particularly transformers. Despite common belief, other kinds of spills are not covered by the policy. Third, the effect of the Spill Cleanup Policy is that it provides the EPA Regions with enforcement discretion for spills, which are considered to be unauthorized disposal. (Editor's note: 40 CFR 761.60 states that spills constitute the disposal of PCBs.) In other words, if you have a spill covered by the Spill Cleanup Policy and you have met the cleanup provisions of the policy, you cannot be punished for unauthorized disposal just because you spilled the material. Fourth, the Spill Cleanup Policy assumes that you clean up the spill quickly and that the spill contaminates relatively small areas (on the order of 20 feet in diameter). Some higher risk scenarios, such as spills that affect surface water and groundwater, are excluded. In addition, there are provisions made for more or less stringent cleanup options, but they must be approved by the EPA Regional Administrator. Finally, the TSCA Spill Cleanup Policy does not preempt cleanup standards from other statutory authorities, such as RCRA, CERCLA, or compliance agreements.

The TSCA Spill Cleanup Policy was created in response to requests from the utility industry. They asked EPA to promulgate regulations establishing a cleanup level for spills from electrical equipment, because they were tired of keeping track of individual EPA Regions' requirements. However, the EPA Regions still have the authority to address old spills which occurred before May 4, 1987 as they see fit.

When does the PCB Spill Cleanup Policy allow for EPA Regional discretion?

The EPA Regions do not have discretion on cleanup requirements for spills that fall within the narrow scope of the PCB Spill Cleanup Policy; however, they do have enforcement discretion on all spills that are beyond the scope of the policy. There are three categories of PCB spills that are outside the scope of the PCB Spill Cleanup Policy: (1) "excluded spills" that contaminate grazing lands and vegetable gardens or that result in direct PCB contamination of (or migrate to and contaminate) surface water, sewage and sewage treatment systems, or private or public drinking water sources; (2) all spills that occurred after TSCA was enacted (May 17, 1978) but before the TSCA Spill Cleanup Policy was put into effect (May 4, 1987); and, (3) all spills that occurred after May 4, 1987, but were not from electrical equipment, not recently cleaned up, not cleaned up immediately upon discovery, and other scenarios that were not addressed by the TSCA Spill Cleanup Policy. The EPA Regions may exercise their discretion for all three of these spill categories.

Pre-TSCA spills (i.e., prior to May 17, 1978) are usually addressed by the CERCLA program, unless there are unusual circumstances surrounding the spill, in which case the EPA Region decides how the spill will be addressed.

If there is some type of continuous release from a PCB spill that occurred prior to the PCB Spill Cleanup Policy, and it will be addressed under a separate RCRA or CERCLA action, would a continuous release from the spill be considered a new spill or a release from an old spill?

It would be considered an old spill under TSCA, but you should also determine whether there are any state requirements that apply.

Can you recommend any particular method for cleaning spills?

No, there are no specific methodologies that apply to all situations. For concrete surfaces, traditional excavation and/or scarification technologies are usually used. In terms of decontamination techniques, at one time there was some concern that people were using aqueous-based and soap-based cleaners. We found that kerosene worked better, and the kerosene could be cleaned up with aqueous soap materials.

Who is responsible for PCB spills caused by equipment owned by a private company but located on federal land? In some cases where the private company refused to test its equipment for PCBs, we have gone so far as to construct secondary containment because of our concerns about CERCLA liability. We have also tried renegotiating the agreement under which the private company is able to operate that equipment.

I cannot speak for the TSCA enforcement branch. However, if a utility owns a transformer in a shopping mall, the owner of the transformer is held responsible for any releases of PCBs from the transformer even though it is not located on property owned by the utility.

I recommend that you either construct secondary containment or encourage the company leasing the land on your facility to test the equipment for PCBs, even offering to pay for it, if necessary. In your discussions, you may want to compare the cost of taking appropriate preventive measures to the cost of remediating a PCB spill. You may also want to require testing or containment as a condition for contract renewal or renewal of the lease agreement. In any case, you should document your efforts and you may also want to send a copy of any relevant correspondence to your attorney.

Do you foresee the cleanup level coming up somewhat for some PCB wastes?

Yes, for some types of soils. For example, disposing of contaminated soils in a controlled municipal landfill <u>on your site</u> may become acceptable in future.

If you are performing a site investigation under the environmental restoration program at DOE, and discover units such as sumps and pits that have concentrated PCBs in the sludge at the bottom due to their operation over the years, does TSCA need to be involved if the concentrations are over 50 ppm?

The PCBs in that situation are not really in use, so it would be considered unauthorized disposal. Regulated PCBs often end up in sumps and sludge traps that were not intended to receive them. The gas pipeline companies have that problem. I do not know where the water goes when it leaves the sumps, but it would pose a potential release to water, and the acceptable levels of PCBs in water are very low. Any water should go through a permitted effluent point before it is released from the site. It may not be a technical problem to remove the PCBs, but from a regulatory standpoint it would be considered an unauthorized disposal technology.

In this case, the EPA Region would determine, on a case-by-case basis, what to do with the contaminated materials. They might address this situation through an FFCA or wait until the regulations change, but they would likely consider it an unauthorized disposal and require some type of remediation of the site. It may be that the solution is not to clean out the drainage system or remove the PCBs, but merely to install new liners in the drains and replumb it. This would seal off the old system so that it is no longer used. That might be a reasonable approach if the PCBs are at a concentration less than 50 ppm. I would suggest contacting the EPA Region and proposing a solution.

Low-concentration PCBs and the Anti-dilution Rule

Our office has a relatively large analytical laboratory and we receive samples (usually of approximately 5 grams of material) from DOE facilities located all over the nation. Part of the analytical process involves performing an extraction of the PCB from contaminated soils, some of which originally have PCB concentrations of greater than 500 ppm, for the gas chromatography workup. After the initial extraction, we do an additional extraction of the soil sample and analyze that extract to determine the residual PCB concentration. If the PCB concentration after completion of the second analytical process is less than 2 ppm, would that be an unregulated waste as far as PCBs are concerned?

It depends on how the wastes came to have their current PCB concentration. If the material acquired a low PCB concentration under a disposal approval (for example, through incineration), then the wastes are "unregulated for disposal" under TSCA. If the low PCB concentration is a result of dilution, then the Anti-dilution Rule applies.

If the material originally contained greater than 500 ppm PCBs, you cannot deregulate it by analysis under the TSCA regulations. In other words, the extraction of PCBs from the soil through the analytical process is not an acceptable method of disposal. However, I would suggest that you explain the situation in a letter to EPA along with a proposed alternative to the TSCA requirements. Although I cannot guarantee that EPA will be able to approve it, we would consider a reasonable proposal.

Could you clarify what is meant by "unregulated for disposal"?

"Unregulated for disposal" means that the material is not required to be disposed of in any of the ways explicitly described in the TSCA regulations. It means that you can dispose of the item in a municipal landfill, although CERCLA liability should be a factor when deciding what type of disposal is appropriate. However, even items that are "unregulated for disposal" can only be used in accordance with all applicable TSCA regulations.

What if there was a situation where, for example, a leaking transformer sprayed the surrounding dirt with dielectric fluid containing more than 500 ppm PCBs. The leak was remediated and the contaminated soil was sent to a temporary staging area where it was inadvertently mixed with mill tailings. As a result, the materials were diluted to about 0.2 ppm PCBs. How would that be handled?

In the situation you describe, the contaminated material, even though it was inadvertently mixed, is considered to have been diluted, and all of it, regardless of concentration, is regulated for disposal according to the original concentration of the PCBs in the transformer. The regulations are very clear on dilution. Dilution does not have to be intentional.

These situations usually fall under Regional discretion. The EPA Regional Administrator may authorize a waiver to any of nine requirements for an approval of a chemical waste landfill. When the EPA Regional Administrator says that you may send material that is regulated for disposal (as in this case) to a municipal landfill or some other kind of controlled landfill (such as a low-level radioactive waste landfill), they are, in effect, exercising their waiver authority. This waiver would normally be documented, either through (1) a formal permit of the facility receiving the waste, (2) enforcement discretion, or (3) their statutory authority under RCRA or CERCLA. So, there are any number of ways that the Region can approve of disposal of such wastes in a municipal or industrial landfill.

At EPA Headquarters, we try to address these types of issues by asking the party what they would propose to solve their problem. If the proposal is not an unreasonable request and does not come close to meeting the requirements of the applicable regulations, we can solve that problem with an FFCA or with an agreement with the Regions.

Are there any allowances for PCB materials less than 2 ppm?

Yes, there are TSCA allowances for residual, or "process," laboratory waste that is less than 2 ppm PCBs (solids and non-aqueous liquids) and less than 3 parts per billion (ppb) for aqueous material. Both of these allowances apply to waste that has been in incidental contact with PCB material. For example, if you have a filter medium that is used to separate water from organic chemicals, the filter must have a PCB concentration of less than 2 ppm to be declared a non-PCB waste.

Water from cleanups of spills that is contaminated at levels in the low ppb range are addressed in a policy statement called "TSCA Policy 6-PCB-2," which is considered an enforcement discretion document. The policy was developed for dielectric fluids at a time when people were filtering PCBs from transformer dielectric fluids and putting the filtered fluid back into the same transformer. The policy said you could do that without a TSCA approval as long as (1) you disposed of the filter as PCB waste and (2) any water that contacted the PCBs at any measurable concentration was treated and discharged in accordance with an NPDES permit.

OPPT uses 3 ppb as a practical limit of quantitation in water, which is analogous to the 2 ppm level of detection that is recognized for soils. OPPT felt if that level is acceptable in an NPDES permit, that it is all that they would require. EPA allows residual water, with a PCB concentration of less than 3 ppb, from a disposal process to be unregulated, provided it is properly disposed of and not reused. The drinking water criteria allow only very low PCB levels in water, on the order of tens of parts per trillion, or three levels of magnitude less than the practical limit of quantitation.

In performing a thorough cleanup on an old spill, the assumption is that the original source of PCBs was at a concentration greater than 500 ppm, even though the present concentration may be anywhere from 0 to 50 ppm. That has a significant effect on the quantity of PCB waste generated during a cleanup operation and the cost of disposal. Why is such stringent cleanup required?

EPA imposed the Anti-dilution Rule and stringent cleanup measures for spills, in part, to encourage people to take practical measures to avoid spills and other unauthorized disposal.
What if you cannot determine exactly when the spill (or disposal) of PCBs occurred or what the original PCB concentration was?

In cases where you cannot identify the source of a spill, it is impossible to determine whether or not the source of PCB contamination was an item with a PCB concentration greater than or equal to 50 ppm, although it should be assumed that the source of PCBs was from a concentration greater than or equal to 50 ppm. Other situations, where large areas are contaminated with PCBs from a known source but the concentration of the source or the date are unknown, are common. Based on the risk, these cases are generally handled by EPA's enforcement personnel or may be addressed under CERCLA.

What are the management and disposal requirements for waste containing less than 50 ppm if the source of contamination was a spill of PCB materials with an original concentration less than 50 ppm?

If the spilled material has a PCB concentration below 50 ppm and the source of the material was below 50, EPA considers the material to be unregulated for disposal. If the source of the spill is regulated, then the spill material is also regulated. However, if EPA begins addressing spills on a risk basis, this might change.

It is important to determine whether there are any state requirements. For example, Kentucky has required remediation to 1 ppm on certain spills, and Oregon has adopted a cleanup level of 0.08 ppm for PCBs in contaminated soil.

Risk-based Spill Cleanup

Will there be risk-based spill cleanup in the future for TSCA?

EPA considers risk-based cleanup for PCBs in the proposed Disposal of Polychlorinated Biphenyls rule (59 FR 62788 et seq., December 6, 1994) in part because of the enormous costs associated with the disposal of low-concentration remediation waste. Currently, that waste is stringently regulated as a result of the Anti-dilution Rule.

Would the risk-based cleanup, that will be under consideration, apply to old spills but not new spills?

The intent of the PCB regulations is to eliminate PCBs, while reducing the economic burden on the regulated community by allowing for continued use under circumstances that have been determined to be "safe." The PCB regulations are not designed to encourage or prolong continued use, and the intent of TSCA is to eliminate PCBs through disposal. As a result, EPA does not intend to modify the PCB Spill Cleanup Policy's provisions for new spills of PCB liquids. The changes in the proposed regulation address only old spills, specifically, large volumes of non-liquid materials that are costly to remediate but will probably pose little risk.

How would risk-based cleanup be conducted?

We have developed a spreadsheet, with the EPA Office of Research and Development (ORD), for the purpose of evaluating comparative risk in PCB remediation activities. The spreadsheet, called the "PCB Risk Disk," is intended for use by the EPA Regions. However, industry prefers a different approach for evaluating PCB remediation efforts, which involves setting numerical cleanup targets. As a result, there is great pressure on EPA to promulgate specific cleanup levels for remediation waste instead of allowing risk-based cleanup, so that is also a possibility.

How is everybody going to use the same risk assessment for PCBs if these spills are being addressed by the different Regions or under different statutory authorities?

Currently, the CERCLA program is using a different risk assessment system than the ORD Risk Disk, which uses data that are extrapolated to all routes of exposure for all Arochlors. Whether the CERCLA program uses the ORD Risk Disk or not, they will probably need to apply something similar to it in the future. If the Risk Disk has technical merit and is adopted informally as an industry standard, then it is possible that the CERCLA program would also adopt it.

Is the Risk Disk available to anyone interested in it?

It certainly is not a secret document. If there were requests from the regulated community for a software program like Risk Disk, I think it would encourage EPA Headquarters to develop and use it.

There are about six scenarios available on the Risk Disk, including a landfill, a stream bank, a stream, and a farm. You enter the type of scenario, concentration in soil, and the kind of Arochlors, and it generates exposures and risks related to that scenario and lists all of the equations used to arrive at that result. It also allows you to enter different soil characteristics, if they are known. If they are not known, it defaults to a 'worst-case' scenario. It explains all of the assumptions behind the risk estimates that are generated, and encourages users to obtain data to replace some of the assumptions, therefore making it a more relevant assessment. I think it could be very widely used. Otherwise, all of the risk assessments are going to be different. [Editor's note: currently, the Risk Disk is available from Dr. John Smith at (202) 260-3964.]

Has any consideration been given to who would be conducting the risk assessments if risk-based cleanup becomes an option?

It would probably be the responsible party. I would assume that those who conduct risk assessments for the CERCLA program would do them. There are no plans for a massive risk assessment organization.

Would EPA develop a set of acute toxicity data, chronic toxicity data, and so forth, that could be used as a baseline in a risk assessment?

Right now, EPA uses something called Q-Star 7.7, which is used very broadly and is extrapolated to all routes of exposure and Arochlors. There is no reason to believe you will see different numbers for different routes of exposure or different Arochlors in the future. This set of data is the one used on the Risk Disk. [Dr. Smith's note: Q-Star 7.7 is the toxicity-based constant (micrograms/kilogram/day) developed by EPA for risk assessments of PCB spills. This toxicity constant would then be multiplied by "exposure" in order to obtain a measure of risk.]

Determining Spill Boundaries

If an alternative method of conducting a screening investigation in terms of PCB contamination is approved or accepted through the CERCLA remedial or RCRA corrective action authorities, would the TSCA program recognize it as acceptable?

If the cleanup is not being conducted through the TSCA program, normally the CERCLA or RCRA program will ask us (OPPT) how to conduct the screening investigation. We have approved of alternative screening activities for CERCLA and RCRA cleanups in the past. We have allowed a company to excavate contaminated soil to a certain point and then take a sample

and analyze it with an inexpensive PCB test kit. Based on test kit analysis, they will either continue to excavate or, if indications show they are below the cleanup level, send a second sample to the laboratory for confirmation analysis by gas chromatography. In this case, the test kits screen the end point for excavation and the gas chromatography is used to verify that excavation can be ended.

I do not know what type of screening kit they propose to use. However, we have found that the immunoassay tests perform accurately at PCB levels around 10 ppm, with results comparable to gas chromatography. The manufacturer's data indicates that interferences are not a problem, although EPA has not verified that claim. EPA prepared a statistically designed study of about five PCB concentrations and about 30 different iterations to check the interferences of total organic chlorine kits. They are supposed to give conservative results. We found that the kits missed PCBs in 11 of 150 samples, some with PCB concentrations as high as 90 ppm. The manufacturer of the kits did the same test and got everything right except for one blank. It appears that the test capability is good, but there are chances for error. It enhances the probability for an accurate result when the person who is conducting the test understands what the test is about and why it is necessary to follow all the procedures. (Dr. Smith's note: there are several field screening technologies for PCBs that are extensively used, including colorimetic test kits, fluorescence tests, "micro-cool," and tests for measuring/detecting chlorine concentrations. Field use of rapid immunoassay tests has increased over the last few years because it provides a more specific and accurate answer.)

Do you believe field screening methods, such as the immunoassay-based method, have broad applications for determining spill boundaries or contamination boundaries if they are followed up with conventional laboratory analysis for verification?

Absolutely. Another type of technology, developed by the Electric Power Research Institute (EPRI), involves a real-time camera that detects ultraviolet radiation and can be used to map out a spill that is otherwise invisible. It is expensive (about $20,000), but it is often possible to spend that much for equipment and staff to be onsite and idle while awaiting the results of analysis or engaged in cleaning up material that may not need to be remediated. Therefore, it may be more cost-effective to accurately outline spill boundaries before cleanup in some cases.

As a suggestion, if there is a new technology that you would like to try at your site, oftentimes the manufacturing company is willing to demonstrate it at low or no cost as a means of promoting their product.

Excluded PCB Products

How do you determine when a product or a piece of equipment is considered an "excluded PCB product" under TSCA?

According to the TSCA definition at 40 CFR 761.3, there are four categories of excluded PCB products, which are "PCB materials that appear at concentrations less than 50 ppm." All excluded PCB products must be less than 50 ppm by a means other than dilution or by contamination from leaks or spills. The four categories are:

"Non-Arochlor, inadvertently generated PCBs as a by-product or impurity resulting from a chemical manufacturing process." (PCBs can be unintentionally manufactured as a by-product of other industrial activities.) There are processes, such as the manufacture of aluminum chloride, that can generate PCBs. In another manufacturing process, a catalyst is used to make freon, and the process generates decachlorobiphenyl as a by-product. It is unlikely that you will deal with these situations.

"Products contaminated with Arochlor or other PCB materials from historic PCB uses (investment casting waxes are one example)." Many people would like to use this provision as justification for characterizing their materials as excluded PCB products, but our General Counsel investigated the preamble discussing excluded PCB products and found that it is not a very broad condition.

"Recycled fluids and/or equipment contaminated during use." Heat transfer and hydraulic fluids and fluids from electrical equipment (i.e., dielectric fluid) are examples. This means that, if you used hydraulic fluid in your units, drained it out, put new hydraulic fluid in, and then put the recycled fluid through an authorized process, the equipment could be excluded PCB equipment if it had a PCB concentration less than 50 ppm.

"Used oils," which applies to materials contaminated by waste oil as a result of authorized manufacture, processing, distribution in commerce, or use of PCB materials.

We have a machine lathe that has one compartment that is hydraulic, but the other compartment may be nothing more than a lubrication system for the bearings and the motors themselves -- gear boxes. Could that be considered an excluded PCB product?

To make a claim that the lathe is an excluded PCB product, the PCBs in the machine must have been an authorized use. There is a TSCA authorization for the use of hydraulic equipment with a PCB concentration less than 50 ppm, but no authorization for the use of oils containing PCBs at any concentration in gear boxes. Therefore, the lathe could not be considered to be an excluded PCB product. The provision for excluded PCB products was made under the assumption that any of these activities would be totally enclosed, with no likelihood of dermal contact with the PCBs. EPA is still looking at the provisions in the regulations for excluded PCB products and will probably issue an interpretive letter on this topic in the future.

PCB Storage Facility Specifications

Are diking and containment structures sufficient to meet the requirement that a PCB storage facility not be located within the 100-year flood water elevation?

The current wording of the regulations says that to obtain EPA approval of a storage facility for PCB wastes you have to meet certain criteria, such as curbing, roof, walls, and so forth, and you cannot locate a storage facility at a site within the 100-year flood water elevation.

If your entire facility is within the 100-year flood water elevation, I would suggest that you address your problem by concentrating your efforts on removing the PCB materials that would pose the greatest threat of contamination in the event of a flood. If you have liquids, you should dispose of them first, because there is ample disposal capacity for them and therefore EPA will not be sympathetic when it comes to their storage. If you have large quantities of non-liquid materials in a floodplain, remove all you can and take measures to prevent contamination from the remaining waste. Do a risk assessment and determine the likely outcome of the materials in the event of a flood. If all or part of your waste storage presents a significant risk, have it removed. Use the resources that you have wisely.

What are the containment requirements for a storage area housing drained transformers? Some storage areas may contain only a few items or even a single transformer.

I would assume that the drained transformer still contains 5 to 10 percent of the listed volume, or name-plate capacity, of PCBs, unless you know otherwise. Ten percent is a conservative estimate. If the storage area only contains a few PCB items, the six-inch curbing that is required for all TSCA PCB storage facilities should be adequate to provide the needed containment volume.

What volume is used to calculate the containment necessary for storage areas where a 55-gallon drum is located that holds three capacitors, each containing slightly more than 2 gallons of PCBs?

The containment volume required depends on the total volume of PCBs in the capacitors only, not the total volume of the drums.

Would you explain why the storage facility specifications require a certain containment for PCB transformers and a minimum 6-inch high curb? If we have a problem meeting that requirement due to criticality concerns, can that be addressed with an agreement?

I assume the 6-inch curb requirement was adapted from the industry standard at the time the PCB regulations were developed. I believe that, at that time, EPA was concerned that PCBs from a spill in a storage area could splash out.

I view containment and criticality as two very different issues. EPA allows for creative methods of meeting the containment requirements to reduce the problems associated with standard concrete curbing. For example, you could build a number of smaller curbed areas rather than have curbing around the entire storage area. At Oak Ridge, they are using what looks like giant test tubes made of polyvinylchloride (PVC) piping instead of concrete curbs.

If that is not feasible, there may be a potential for making an exception to the curbing requirements for fissionable PCB waste. Because that is not a widespread problem, it would most likely be addressed through a Federal Facility Compliance Agreement (FFCA). It is my opinion that EPA would not have a problem with an FFCA, provided that they understand the situation and DOE has made an effort to come up with reasonable alternatives for addressing EPA's concerns. EPA is committed to requirements for secondary containment, but obviously not to the extent that it would create a risk of a nuclear incident. [Editor's note: DOE Headquarters is currently negotiating a National Compliance Agreement with EPA for the storage of PCB/fissionable waste. This agreement is expected to be completed in 1995.]

PCB Disposal Capacity

Most DOE sites have tons of solid PCB wastes in storage that need some disposal method. Is there anything going on in the commercial community in conjunction with EPA that could result in licensing more commercial incinerators to handle solid PCBs or PCB/radioactive wastes?

Two new incinerators have been permitted in the last several years, but I do not think either one is authorized to incinerate solids. I do not know if the situation is going to change as it relates to non-liquids. [That is why EPA proposed alternatives for non-liquids in the rule published on December 6, 1994 (59 FR 62788, et seq.)]. As far as radioactive PCB waste is concerned, I recommend that the facility enter a compliance agreement with EPA to address the disposal capacity problem.

There have been a few creative solutions to the problem of disposal of solid PCBs. One facility, that was incinerating capacitors, was having problems with lead from the solder on the casings and inside the capacitor. Another company is now cutting open the capacitors for them, rinsing out the casings, which are landfilled or smelted, and sending all the wire, paper, and other material from inside the capacitors, which do not contain lead, to be incinerated. Those are the types of solutions we hope to foster by allowing other options for non-liquids in the rulemaking. Our office (OPPT) does not work on those issues because of conflict of interest concerns, however, ORD sponsors and encourages research through the Technology Innovation Office. If the cleanup level for PCBs in soil was raised from the level of detection (2 ppm) to 10 ppm, I think there would be three or four additional technologies available that could readily achieve the 10 ppm level.

Our problem is a radioactively contaminated piece of equipment that contained PCBs in its hydraulic fluid. The hydraulic fluid was drained and properly disposed of and the equipment was cut up and put in a metal box. Right now there is no disposal capacity for this material. What would you require in that case?

I do not think EPA is likely to require anything beyond periodic reporting and seeking of capacity. EPA does not require people to conduct research and development. However, I think that the Department of Energy, as an organization, should consider compiling a list of their radioactive PCB waste to determine whether there is enough of a problem to justify the development of another incinerator. The thermal technology is well developed, but the problem is the radioactive waste left over. The Federal Government needs to develop its own technologies, even if it is just for waste reduction. I think the Department of Defense (DoD) has been pursuing that. This is a chance for the Department of Energy to lead the way.

Would EPA recognize a backlog at the incineration facilities, for example for PCB capacitors, as a valid reason for an extension to the requirement for disposal within one year?

EPA's proposed Disposal of PCBs rule (59 FR 62788 et seq.; December 6, 1994) addresses this issue, but it does not allow for an indefinite extension to the storage limit.

PCB Small Capacitors

Does EPA plan to address the issue of light ballast disposal and the reporting requirements under CERCLA?

EPA's proposed rule on PCB disposal solicits information from the regulated community on the level of PCBs found in the potting material of fluorescent light ballasts and the percentage of ballasts recycled that contain PCBs (59 FR 62813-62814; December 6, 1994).

Fluorescent light ballasts, manufactured prior to 1979, often contain PCB small capacitors. Because of energy efficiency programs, such as EPA's Green Lights program, large quantities of light ballasts may be removed from service. Remember that one pound of PCB is a reportable quantity (RQ) under CERCLA, and that the PCBs in about 12 or 13 small capacitors or fluorescent light ballasts can make that pound. Therefore, it would be advantageous to investigate the disposal alternatives other than in a municipal landfill to avoid potential CERCLA liability. However, more protective disposal is not required under the current TSCA regulations.

There are several companies that will either dispose of the light ballasts in a chemical waste landfill or remove the PCB portion from the rest of the ballast so that they can be disposed of separately. Some even use a fluoroscope to find the location of the capacitor.

I know that one of the utilities is taking in PCB small capacitors from light ballasts from schools, churches, and homes and disposing of them for free as a public service. Does that make them a commercial storer?

Although EPA is not trying to punish any entity for being a good citizen and helping to dispose of PCB small capacitors in a protective manner, the answer is yes. The letter of the law would indicate that the commercial storage regulations apply.

Unmarked PCB Equipment

How do you know whether an unmarked capacitor contains pure PCBs? Do you just assume that any capacitor made before 1979 contains pure PCBs?

If there is no mark that says "No PCBs" and you know it was manufactured before 1978, you can assume that it does contain PCBs. PCBs were used in the production of virtually all small capacitors manufactured before 1978.

Do you foresee any changes to the marking requirements in the future (in particular for items such as bushings where the PCB concentration, if any, is unknown)?

EPA does not plan to change the PCB marking requirements to require marking of contaminated equipment -- that is, equipment with a PCB concentration greater than 50 ppm but less than 500 ppm. It is possible that voltage regulators and some other equipment with PCB concentrations above 500 ppm may require a label in the future. Transformers with PCB concentrations greater than 500 ppm undergoing reclassification must be marked until the reclassification process is completed. As far as bushings are concerned, we do not have much information on the incidence of PCBs in bushings. I do not think we will require testing of bushings, and we are not planning to add any requirements to assume that they contain any PCBs.

What is the recommended course of action for management and disposal of equipment that is old, unlabeled, untested (or untestable), or otherwise has an unknown PCB content?

I would consider implementing a program to test for what I would call "environmentally sensitive" equipment. If there is a piece of equipment that could pose a risk to human health or an environmental resource such as a stream or a wetland, I would test it for PCBs, even if just with an inexpensive PCB test kit. That way, if I had a plan to phase out PCB equipment, I would know which pieces to replace first, even if I could only afford to remove one piece per year.

It is impossible to determine the PCB concentration of a transformer without testing regardless of what is indicated on the label. Some people claim that they can predict PCB concentration very accurately from information on the manufacturer and serial numbers, even if there is no

other indication that the equipment contains PCBs. However, you should use this source of information cautiously.

I suggest that you perform a "mini risk assessment" to determine which pieces of equipment would be worthwhile testing with a five-dollar or ten-dollar test kit. The state or EPA Region is not likely to look kindly upon a major release from an unmarked transformer, regardless of what the regulations allow you to assume.

EPA has not addressed the issue of testing equipment, such as bushings, that cannot be tested without compromising the integrity of the equipment and making it unusable. You must manage this type of equipment at your own risk. If a discovery is made that this equipment contains PCBs, then the facility will be fully liable for proper management and disposal.

What are the consequences of making an assumption about the PCB concentration of an item in accordance with the Assumption Rule that later turns out to be incorrect?

Be careful when applying the Assumption Rule. My experience is that it is worth verifying the PCB concentration with an inexpensive test kit, especially for transformers that could result in costly spill remediation. You would probably not be penalized for improper labeling or insufficient inspection, but you would be held responsible for reporting and cleaning up a spill based on the higher PCB concentration.

Managing PCB Equipment

Is EPA concerned about any of the chemicals that are being used as PCB substitutes?

Common PCB substitutes include silicone fluid, tetrachloroethylene, trichloroethylene, chlorinated benzene, and Artemp (a high boiling-point hydrocarbon). Most of these substances have some health risks associated with them, and facilities should be concerned about personal health and safety when using them as PCB substitutes. However, the use of these chemicals is not prohibited and cannot be prevented by EPA. Some of these substances may be regulated under different Federal acts, but there is no planned assessment of these chemicals under TSCA.

What are the restrictions on reclassifying transformers?

Any transformer in service that contains PCBs can be reclassified to a lower concentration category at any time, and EPA prefers that they were all reclassified immediately. The October 1990 deadline, that was imposed by the Fires Rule, applied specifically to transformers in or near commercial buildings. After that date, the installation and use of PCB transformers with a concentration greater than 500 ppm without enhanced electrical protection was absolutely banned, unless a PCB transformer in storage for reuse had to be installed in an emergency. Most PCB transformers are required to have enhanced electrical protection now, and we certainly encourage the use of electrical protection devices on all other PCB transformers in service.

Under the new or existing regulations is there any requirement to phase out non-leaking, PCB-contaminated electrical equipment?

No, there have been no TSCA initiatives to phase out transformers contaminated with PCBs at concentrations of 50-500 ppm. There is no phase-out planned because EPA believes that there may be about 10 times as many PCB-contaminated transformers (i.e., transformers with PCB levels between 50 ppm and 499 ppm) as there are PCB Transformers (transformers with PCB levels equal to or greater than 500 ppm). In addition, either the problems caused by fire-related incidents involving PCB-contaminated electrical equipment have not been very great, or the resulting contamination has not been assessed to determine whether there is as much of a problem with PCB-contaminated transformers as there is with PCB Transformers. The PCB Transformers are the ones that pose the greatest risk and that is where EPA has focused its efforts.

How do you determine the date of removal from service for disposal in the context of a transformer phase-out program that may involve 100 or more transformers?

First, the intent of the TSCA regulations is not to authorize continued use of PCBs, it is to dispose of them. EPA is not encouraging their continued use and is allowing it only because there is no other reasonable economic choice. Within the one-year storage limit for PCB wastes prior to disposal, the generator is allowed nine months to arrange for disposal and the disposal facility is allowed three months for final disposition. If you have a transformer that you determine you cannot use any longer, the one-year disposal "clock" begins at that point. In other words, once a transformer has been phased out and is declared no longer in service, it must be disposed of within one year. In addition, you may not put it into storage for reuse once the decision for phase-out has been made.

What are the consequences if the funding that was requested for such a program fails to become available?

The only way to address that problem without starting the one-year clock is to start determining how to dispose of the transformer while it is still in service. You can request funding for disposal without removing a transformer from service. Give yourself enough lead time to get through the red tape associated with disposal while the transformer is still in use. Either keep it in service or store it for reuse, but do not make the decision that you are going to dispose of it until you have a plan in place. Requesting funds for disposal while the equipment is still in use will not start the one-year clock.

What are the general criteria regarding storage for reuse? For example, can a piece of equipment be put on stand-by and pulled back into service within 24 hours?

You can remove a transformer from service if it is not currently used without triggering the one-year disposal clock, and storage for reuse specifically addresses this situation. The provision for storage for reuse is purposely broad to allow for putting equipment on stand-by, as well as to allow for activities like servicing and reclassification, which can take substantially longer than 24 hours. In addition, there are currently no formal criteria for storage for reuse. In general, equipment does not become waste until it is determined that the equipment either has no identified use or is no longer suitable for reuse. However, EPA's proposed disposal rule (59 FR 62788 et seq.; December 6, 1994) adds time limits, recordkeeping, and reporting requirements to the storage for reuse provision (proposed 40 CFR 761.67).

Is there any time limit on servicing?

No, there is no specified time limit for servicing, although there are some restrictions on what servicing includes. For example, PCB transformer servicing does not include de-tanking. In addition, a PCB Transformer may not be drained and totally refilled, except for reclassification purposes.

Some of these types of issues are addressed by the enforcement office in enforcement discretion documents available from the TSCA Hotline at (202) 554-1404. They will send you a stapled packet of the TSCA enforcement policies.

Are there any restrictions on the management of materials containing PCBs at or below detectable limits that are transferred from another federal agency?

If the materials are unregulated, there are no restrictions, but you should determine how the materials came to have such a low PCB concentration. If from dilution, the materials would be subject to the Anti-dilution Rule. However, I would say that if the PCB level is less than the level of detection, and the source of contamination is unknown, it is unregulated.

What kind of documentation is required to extend storage for PCB waste that has a radioactive constituent?

There currently are no provisions for extensions to the one-year storage for disposal requirement. However, the proposed rule does address this problem by allowing extensions [see 40 CFR 761.65(a)(2) at 59 FR 62866]. For radioactive PCB waste, there will not be much of a problem, because EPA knows that there is no disposal capacity. EPA may decide to allow extended storage on a case-by-case basis with approval from the EPA Regional Administrator.

However, for a disposal capacity problem for an item such as PCB capacitors, there will have to be written evidence in the form of a letter of denial from one or more disposal company(ies)

before EPA might be willing to consider an extension. (EPA assumes that DOE can decontaminate the surface of capacitors and render them non-radioactive.)

[Editor's note: DOE Headquarters is currently negotiating a National Compliance Agreement with EPA for continued storage of PCB/fissionable wastes. This agreement is expected to be completed in 1995.]

What are the requirements for the management of leaking transformers containing PCBs in the three major concentration categories: less than 50 ppm, between 50 and 500 ppm, and 500 ppm or greater?

Transformers containing dielectric fluid of less than 50 ppm PCBs are unregulated for use and disposal, but from a practical standpoint it is undesirable to have oil leaking from a transformer no matter what it contains. The TSCA Spill Cleanup Policy applies to any material released from a transformer containing PCBs at a concentration of 50 ppm or greater. Transformers containing PCBs at greater than 500 ppm must be inspected for leaks quarterly, and records of these inspections must be kept for five years. There is no current requirement to inspect transformers with a PCB concentration of less than 500 ppm.

If a PCB transformer is leaking, it is not authorized for use. If it cannot be serviced, it must be disposed of within one year.

PCB Compliance Agreements

Does your office have an opinion on what should be included in compliance agreements that address PCBs?

I have implied that many of the problems that DOE has with PCB compliance are a fairly small part of the problems experienced by the regulated community. EPA does not plan to address issues of narrow scope in regulation due to restricted resources. As a result, many DOE problems could be addressed in compliance agreements -- for example, the extension of dates for storage and disposal. However, you should realize that the goal of my office is to get rid of PCBs, period. Normally we require provisions in the agreement for regular reporting and/or a schedule for eventual compliance.

Do you believe that EPA would entertain a complex-wide or national FFCA?

It is my opinion that DOE would first have to establish some level of radiation that would be considered a minimum level for regulation as radioactive waste, or at least a level below which dual regulation would not be required. EPA recognizes that there will still be a whole universe of waste that will not be affected even if the radioactivity issue is resolved, but it would be a start.

Would you please comment on the role that EPA headquarters has versus the role of the EPA Regions regarding FFCAs? We have been led to believe by our Region that they would not entertain an extension of the storage limit for radioactive PCB wastes unless we had a very definite action plan to solve the problem. In other words, they were demanding that we commit to specific dates by which we would have solved the problem.

I would try to think about other things you can do that are not directly related to radioactive PCB waste to help accomplish EPA's goal of eliminating PCBs. For example, you could phase out equipment, on a regular schedule, that you are not required to phase out.

Realistically, EPA cannot force DOE to develop new technologies to dispose of radioactive PCB waste. It is inevitable that this waste will be stored in excess of one year. Any new treatment capacity, even any efforts that may be currently underway, is years away from fulfilling the licensing procedure for pilot or demonstration projects. However, you could demonstrate a good-faith effort to move forward on PCB remediation and disposal by working on other PCB-related problems. For example, if DOE worked with EPA through an FFCA to establish cleanup standards for spills, it could set the tone for the regulations and would ease the burden on the EPA Regions. However, we are talking about big negotiations, and people would have to be willing to demonstrate that it would save a lot of time and money. [Editor's note: DOE Headquarters is currently negotiating a National Compliance Agreement with EPA for the storage of PCB/fissionable waste. This agreement is expected to be completed in 1995.]

In terms of an FFCA for spill cleanup materials, how would you address the state's concerns in that process?

An FFCA is strictly a Federal agreement. It would be up to you to make whatever deals you can with the states. If you already know that you are going to propose FFCA cleanup levels that the states are never going to be satisfied with, that's a problem. But, if the state has a voluntary program for 0.08 ppm, I would try to determine how they got to that number and how you came to yours, and argue the point from that angle. It is always better to try and negotiate a compromise with the state. At Paducah, the State of Kentucky agreed that the TSCA cleanup standards could be applied within a solid waste management unit, but spills outside a solid waste management unit would have to be cleaned to background levels.

In a situation where there is material contaminated with both PCBs and fissionable material, and there is no disposal facility available or planned to dispose of this waste, how can you enter into a compliance agreement with EPA?

You would enter a compliance agreement to acknowledge that you realize that the material needs to be disposed of and to receive formal acknowledgement from EPA that it is impossible to comply with the letter of the law right at this time. The regulations do not contain a provision for legally storing any type of PCB waste for more than one year, and you would be in violation if you exceeded the one-year time period regardless of whether technology is available or whether

there is disposal capacity. What the FFCA allows is for you to continue operating, recognizing a violation of the law, but providing compliance conditions for such operations. [See editor's note above.]

We fear that, without a definite strategy for coming into compliance, the EPA Region will not enter into an agreement. In addition, we cannot be sure that the funding necessary for any major project like a new incinerator will be authorized by Congress. What are our options?

I would not advise being too dependent on the enforcement language to protect you in the event of a lack of funds, because that has not been successful at several DoD sites. You have to have well-documented indications that you specifically requested the budget item involved and must show some level of protest at not receiving the money. However, in one case, there were several documents pointing to the fact that the defendants requested the money to clean up their sites and were denied, but the convictions upheld because the court determined that they did not protest hard enough. You could try to qualify for a line item on the Federal budget, and although there is no guarantee that Congress will authorize the amount you request, you would have a stronger case than you would otherwise. [See editor's note above.]

Conclusions

In summary, there are four significant focal points DOE facilities should consider in managing PCBs:

(1) DOE field operations should refer to the TSCA regulations to answer any questions or doubts regarding PCB management at their sites. The general rule to follow when dealing with PCBs is -- if the activity is not specifically found in the regulations, then it is probably banned (i.e., will require an approval).

(2) PCB concentrations less than 50 ppm are not generally regulated by TSCA; however, TSCA may apply if the lower PCB concentration is a result of dilution. DOE facilities should be conservative in management of these materials because improper management could result in RCRA or future CERCLA liability.

(3) DOE facilities should consider an FFCA in order to remedy foreseeable, exceptional PCB problems, such as radioactive PCB storage beyond the one-year limit. What the FFCA allows is for you to continue operating, recognizing a violation of the law, but providing compliance conditions for such operations. EPA would not have a problem with an FFCA, provided it understands the situation and DOE comes up with a reasonable approach for addressing EPA's concerns.

(4) DOE facilities with proposals regarding innovative disposal technologies or management procedures should seek EPA approval.

REFERENCES

Disposal Requirements for PCB Waste. DOE/EH-231-056/1294, December 1994.

Guidance on the Management of Polychlorinated Biphenyls (PCBs). DOE/EH-0350, November 1993.

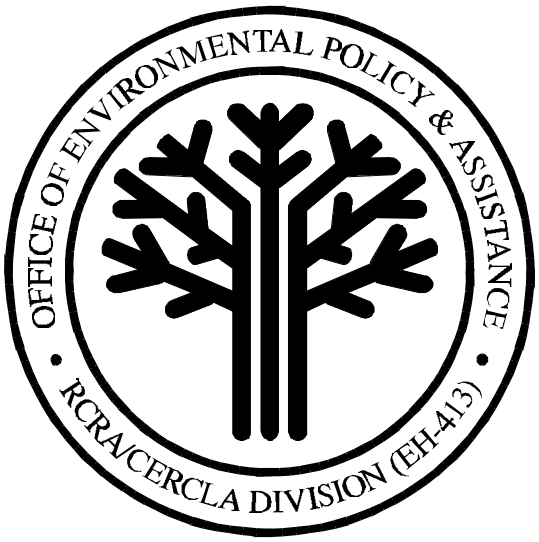
PCB Manifesting, Tracking, and Disposal Requirements. DOE/EH-231-001, November 1990.

The PCB Mark. DOE/EH-231-057/1294, December 1994.

PCB Recordkeeping and Reporting. DOE/EH-231-058/1294, December 1994.

PCB Spill Response and Notification Requirements. DOE/EH-231-059/1294, December 1994.

PCB Storage Requirements. DOE/EH-231-060/1294, December 1994.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